THE CENTER FOR DATA ANALYTICS & CYBERSECURITY (CDAC)

NEWSLETTER

December 2025

Issue 03

As the year draws to a close, all of us at the Center for Data Analytics and Cybersecurity (CDAC) are p*leased to share our latest updates and warmest holiday wishes with you.*

Impactful Training and Research: **CDAC expanded its training capacity by developing a Wireless Cybersecurity Hands-on Training Series. The inaugural workshop, successfully delivered in October, focused on Wi-Fi security and threat mitigation.**

Our research initiatives reached new milestones this year. Our testbeds are set up, providing the essential infrastructure needed to drive discovery and innovation. Beyond conference presentations, our affiliated researchers published three peer-reviewed papers covering critical topics, including integrated cyber-risk-based process safety frameworks for the chemical industry and intrusion detection for autonomous vehicles.

Fostering Student Success: **Student success remains our "North Star." By hosting Lamar University's inaugural Capture the Flag (CTF) competition and welcoming mentors from the ISACA Greater Houston Chapter (GHC), we are bridging the gap between academic study and industry leadership.**

Upcoming Event: **ISA Southeast Texas Section and CDAC are preparing for the 2026 Automation Expo & Cajun Cookoff & Cybersecurity, AI & Automation Symposium on February 25, 2026, at Robert A. "Bob" Bowers Civic Center in Port Arthur. It promises to be a great opportunity for networking, learning, and of course, enjoying some delicious Cajun food!**

Season's Greetings: **These achievements would not be possible without your continued support. As we look forward to even greater strides in 2026, we wish you a secure and joyful holiday season—may your holidays be filled with peace and your New Year be bright!**

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TRAINING AND RESEARCH

Wireless Cybersecurity Hands-On Training Workshop

To address the security risks associated with wireless communication, CDAC and the LU Department of Computer Science developed a new wireless cybersecurity hands-on training series. A huge thank you to Professor Bo Sun and Mr. Frank Sun for making our first session this October such a success! We look forward to bringing more training opportunities to our community in the coming year.

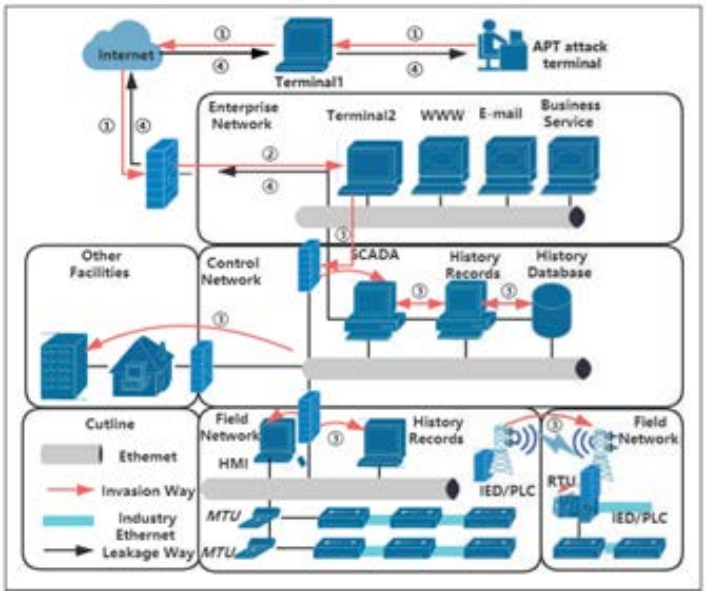
Agenda

Session 1: Theory

- Introduction to Network Security
- IEEE 802.11i Wireless LAN Security
- Wireshark Fundamentals
- Case Studies: Real-World Wi-Fi Attacks and Defense Strategies

Session 2: Practice

- Introduction to Kali Linux
- Package Analysis with Wireshark
- Understanding the WPA2 4-Way Handshake
- Executing a WPA2 Passphrase Crack



Peer-Reviewed Publications

Autonomous Vehicles (AVs) Intrusion Detection:

- Paul, P., Liu, X., Lou, H. H. (2025). Enhancing Automotive Intrusion Detection Through Multi-Modal Fusion: A CAN FD-LiDAR Approach. *2025 International Conference on Smart Applications, Communications and Networking (SmartNets)* (pp. 1-6). IEEE. https://doi.org/10.1109/smartnets65254.2025.11106845

Abstract Summary: By integrating CAN FD and LiDAR data, this multi-modal fusion approach uses a two-stage ensemble model to detect sophisticated, cross-system cyber attacks. This lightweight, real-time solution achieves strong performance while offering three times the efficiency of deep learning competitors.

- Paul, P., Liu, X., Lou, H. H., Wang, R. (2025). Edge ML for CAN Bus Intrusion Detection in AVs. *ITU Journal on Future and Evolving Technologies, 6*(2), 170-182. https://doi.org/10.52953/spql9105

Abstract Summary: The authors introduce lightweight neural network models capable of real-time intrusion detection, achieving performance levels optimized for edge deployment. By integrating Explainable AI (XAI), the study identifies distinct forensic fingerprints for each attack type.

Cybersecurity Risk Assessment

- Sabuj, M. A., Robertson, D., Richmond, P., & Lou, H. H. (2025). An Integrated Cyber-Risk–Based Process Safety Framework for Cybersecurity Risk Assessment in Chemical Process Industries. *Smart and Sustainable Manufacturing Systems*, in press.

Abstract Summary: This framework successfully integrates key methodologies, including process hazard analysis, layer of protection analysis, common vulnerability scoring system, and exploit prediction scoring system. Its efficacy is demonstrated by a case study on a refinery distillation column.

STUDENT SUCCESS

Capture The Flag (CTF) Competition

The Fall 2025 Capture the Flag (CTF) Competition brought students together for a dynamic, hands-on cybersecurity challenge in November. Participants demonstrated technical expertise and creative problem-solving capacities in real-world scenarios. Special thanks to Dr. Xingya Liu, Interim Chair of Computer Science, and Dr. Masud Rana for their leadership and coordination.

Our Winners

🏆 **First Prize:**
- **Muna Kandel**

🥈 **Second Prize:**
- **Meet Monpara**
- **Adedeji Adedokun**

🥉 **Third Prize:**
- **Naman Subedi**
- **Gavin Gibbs**
- **Bilal Maqsood**
- **Jennifer Estupinan**

ISACA GHC Seminar: Industry Trends & Cybersecurity Pathways

In November, CDAC hosted ISACA Greater Houston Chapter (GHC) board members Kevin Hall and Daryl Riley for an insightful seminar. They provided students with a comprehensive look at cybersecurity trends and the importance of adaptability and lifelong learning. The session featured ISACA's Career Path Navigation framework, covering key domains like Audit, Governance, Privacy, Risk, and Security, while highlighting certification pathways to accelerate career advancement. The event concluded with an overview of ISACA member benefits, including mentorship, networking, leadership opportunities, and internationally recognized certifications, leaving students well-informed about their options and ISACA's support.

2026 Automation Expo & Cajun Cookoff and Cybersecurity, AI & Automation Symposium

Expo Highlights:

- Discover the latest technologies at vendor exhibits
- Enjoy live music, networking, and cocktails
- Connect with students and win prizes
- Don't miss the legendary Cajun Cookoff competition

Cybersecurity, AI & Automation Symposium (2:30 PM - 5:00 PM)

Session 1: AI & Data Analytics
Session 2: Cybersecurity & Automation

Registration Link to Expo:

https://isasoutheasttexas.org/